

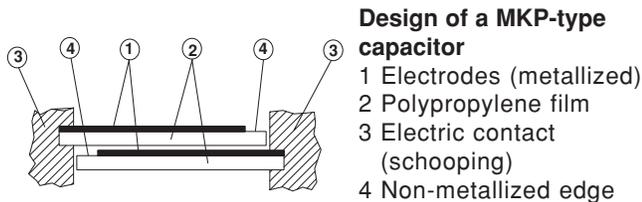
ESTAprop®/ESTAdry® Power Factor Correction Capacitors Low Voltage

GENERAL TECHNICAL INFORMATION

MKP - TECHNOLOGY

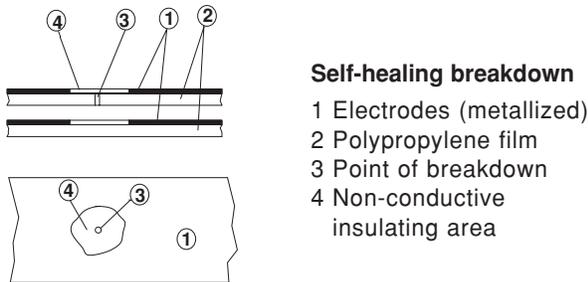
Capacitors are used in many diverse applications, and many different capacitor technologies are available. In low voltage applications, MKP-type capacitors which are made in accordance with metallized polypropylene technology have proved to be most appropriate and also the most cost effective. Dependent on the nominal voltage of the capacitor, the thickness of the polypropylene film will differ.

MKP-TYPE CAPACITOR (metallized polypropylene film)



SELF-HEALING

At the end of service life, or due to inadmissible electrical or thermal overload, an insulation breakdown may occur. A breakdown causes a small arc which evaporates the metal layer around the point of breakdown and re-establishes the insulation at the place of perforation. After electric breakdown, the capacitor can still be used. The decrease of capacitance caused by a self-healing process is less than 100pF. The self-healing process lasts for a few microseconds only and the energy necessary for healing can be measured only by means of sensitive instruments.



For a self-healing dielectric, impregnation is basically not required. However, our MKP-type capacitors are impregnated to eliminate environmental influences and to guarantee reliable, long-term operation. Vacuum impregnation eliminates air and moisture, improves "self-healing" and reduces thermal resistance.

IMPREGNATING AGENT (ESTAPROP)

ESTAprop® MKP-type capacitors are impregnated with a specially treated oil. The highly fire-resisting insulation oil on vegetable base (flash point 285°C, ignition point 315°C) is fully biodegradable and nontoxic. There are no legal

regulations regarding its destruction so it can be safely disposed of with ordinary refuse.

IMPREGNATION (ESTAPROP®)

After an extended drying period, the impregnation (filling the capacitor casing with oil) is carried out under high vacuum for removal of moisture. Following this process, the capacitor will be hermetically sealed. This process ensures excellent heat dissipation and constant capacitance over full service life.

FILLING AGENT (ESTADRY®)

ESTAdry® MKP-type capacitors are "dry". That is, after the extended drying period and before the hermetic sealing of the casing, a non-liquid filling agent is used instead of natural oil. In case of tubular cans, it is an environmentally friendly inert gas-filling to avoid corrosion of the winding elements and inner electric contacts. For larger dry capacitors, e.g. the DW-Type Filter Capacitors, the filling agent is a resin.

A little "g" shows the difference in the type designation between the oil-impregnated (PhMKP) and the dry version (PhMKPg).

We recommend the use of our oil-impregnated standard tubular can type whenever possible, especially for filter applications, as its thermal resistance is very low and it therefore provides excellent heat dissipation, which helps to overcome very high loads.

Both versions comply with the highest temperature class D, specified by the standards. The oil-impregnated version has more safety margin by design.

PROVIDING THE WINDING ELEMENT WITH ELECTRIC CONTACTS

For ESTAprop® and ESTAdry® MKP-type capacitors, metallized electrodes are used. A winding element consists of two displaced polypropylene films, wound together. The front surface of the winding elements is joined by means of a metal spray process. This process is called Schooping. Due to the displacement of the two polypropylene films, only one film will be electrically connected on one side of the element. The terminal leads can be soldered onto this sprayed metal surface.



Winding element with schooping and soldered connecting stripes

General Information



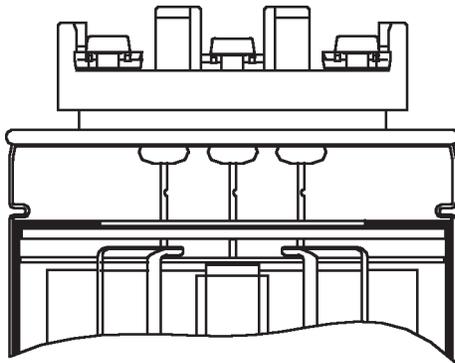
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ESTAprop®/ESTAdry® Power Factor Correction
Capacitors Low Voltage

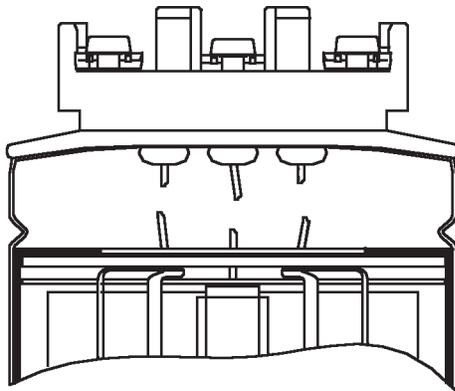
OVERPRESSURE TEAR-OFF FUSE

If at the end of service life, due to inadmissible electrical or thermal overload, an overpressure builds up and causes an expansion over a certain limit causes the tear-off of the internal fuses. The active capacitor elements are thus cut off from the source of supply. The pressure within the casing separates the breaking point so rapidly that no harmful arc can occur.

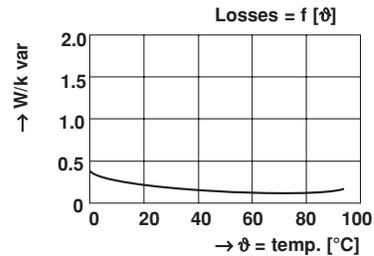
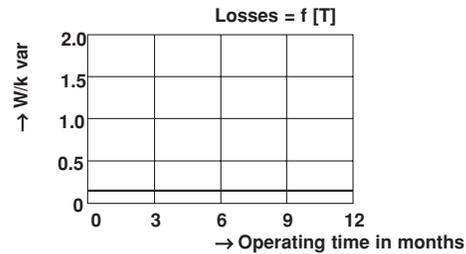
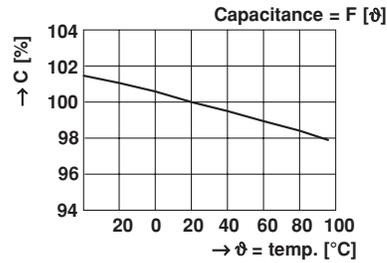
OPERATING CONDITION



TORN-OFF CONDITION



CHARACTERISTICS OF DIELECTRIC MKP-POLYPROPYLENE, METALLIZED



CE-MARKING

ESTAprop® low voltage
ESTAdry®

capacitors conform with the regulations of the following European directives:

89/336/EWG

Electromagnetic compatibility

92/31 /EWG

Electromagnetic compatibility

93/68 /EWG

Directive to change the directives
... 89/336/EWG

All ESTAprop® and ESTAdry® low voltage Power Factor Correction Capacitors are supplied with CE - marking.

UL AND ULC-MARKING

ESTAprop® and ESTAdry® cylindrical type capacitors have been tested and approved by independent laboratories such as Underwriters Laboratories Inc.(UL). ESTAprop® and ESTAdry® low voltage capacitors conform with UL-standard 810 and Canadian standard C 22.2. UL and ULC marks are included in standard component marking.